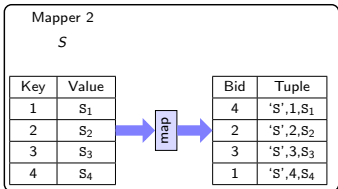
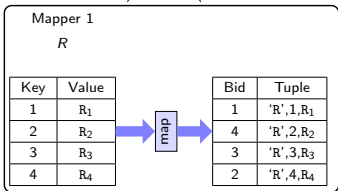


Randomly assign-
ing bucket ID (Bid)



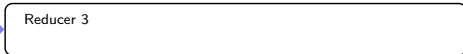
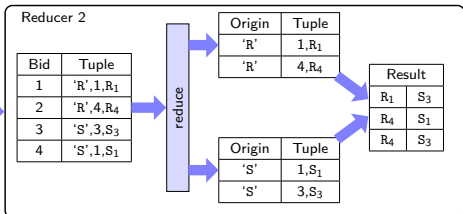
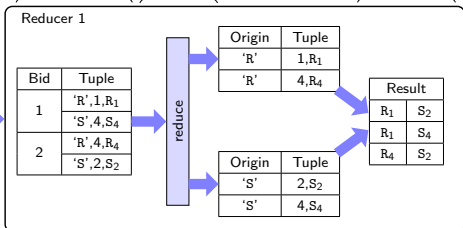
Map Phase

Partitioning by Bid (Round Robin)

Grouping
by Bid

Aggregate tuples
based on origins

Local θ -join
(θ is ' \neq ')



Reduce Phase